A FIELD GUIDE TO THE RECOGNITION OF ARCHAEOLOGICAL MATERIALS ALONG THE TRANS-ALASKA PIPELINE

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A FIELD GUIDE TO THE RECOGNITION OF ARCHAEOLOGICAL MATERIALS ALONG THE TRANS-ALASKA PIPELINE

by

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INTRODUCTION

Since 1969, archaeologists from Alaska Methodist University and the University of Alaska, working for the Alyeska Pipeline Service Company, have been surveying the pipeline right-of-way, material sources, and other construction areas from Prudhoe Bay to the Valdez terminal (Figure 1). However, in view of the thousands of square miles involved, it is reasonable to expect that some archaeological sites have been overlooked, and although the surveys are continuing, the archaeologists cannot be present wherever construction activities may uncover new evidence of archaeological remains.

This manual is directed to the non-archaeologist working in the field who may have an opportunity to assist the professional investigators by recognizing and reporting archaeological sites. Its purpose is to provide instructions on how to recognize a site and, secondarily, to provide background information on the cultural history of Alaska.

RECOGNIZING ARCHAEOLOGICAL SITES

Archaeologists reconstruct the life styles of past peoples from the relatively few artifacts which have survived through time. When analyzing a site, an archaeologist is interested in such aspects as the social characteristics of its former occupants, the food they ate, the arrangements and contents of their dwellings, and indications of their religious practices. Whatever enhances our understanding of past cultures and their adaptations to the environment is of interest to the archaeologist.

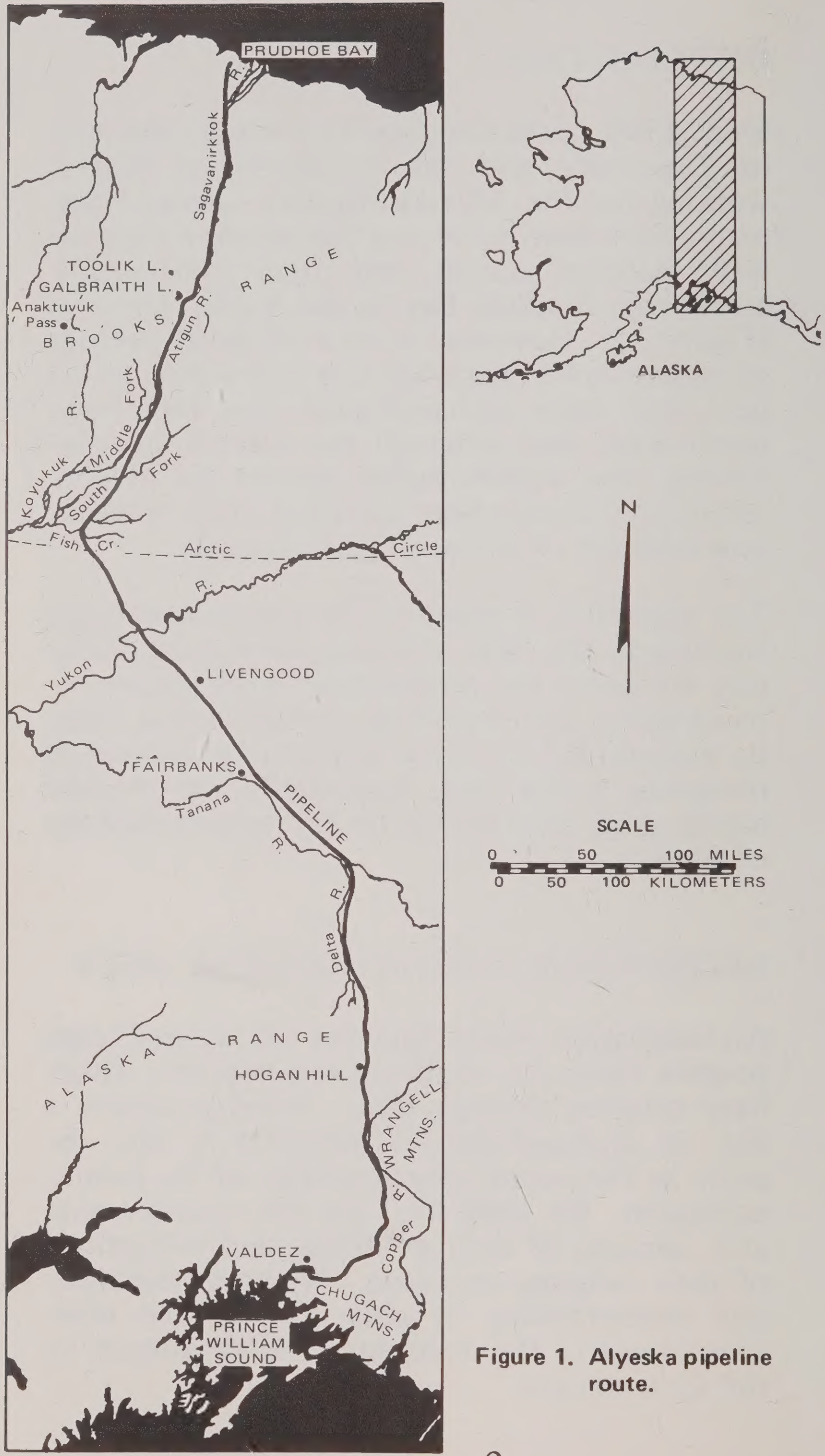

Figure 1. Alyeska pipeline route.

While artifacts alone provide some clues about the habits of prehistoric people, the relationships between the artifacts which have remained where their users left them tell us much more. An engraved ivory harpoon head may be of value as a work of art but when found among other artifacts it may also help date a site, or indicate that an inhabitant of one house was a master carver who supplied others with harpoon heads, or even suggest that widely separated sites were inhabited by people with the same culture.

The relative positions of artifacts within a site are important in the vertical as well as the horizontal plane. If a group camped on a knoll and then departed, whatever they left behind may in time have been completely covered with soil. If another group camped on the same spot years later, what remains today will be a stratified site containing two cultural layers. For the archaeologist to learn the most about both cultures, it is important not to mix these layers prior to his investigation.

If the reader discovers a possible archaeological site, he should refrain from picking up artifacts or disturbing the site in any way.* Instead, he should request the Alyeska archaeologists in his section to check the site. If the area is in danger of being disturbed, the site may be excavated by the archaeologists and a new chapter written in Alaskan prehistory. The Alyeska archaeologists are to investigate and assess every possible site. They would rather check out many possible sites than risk missing one which is significant.

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*Regulations for the protection of archaeological sites are listed at the end of this manual.

Where to Look for Sites. How does one decide where sites are likely to be found? Sites are not randomly scattered along the pipeline route. From reports of early explorers and other sources we know that the native inhabitants of Alaska were hunters, fishermen, and gatherers who depended on natural resources for survival. One common sense approach is to ask: "If I hunted, fished, and gathered for a living, what resources would I need and where would I find them?" Another is to consider that prehistoric people with lifestyles similar to those of recorded times would use the same locations as the historic people. Inherent in either of these approaches, however, is the assumption that the basic environment has not changed drastically in the last 8,000 years.

Many sites found along the route are on low hills and ridges which provided vantage points for hunters watching for game. These localities, in addition to being good lookout spots, were drier, permitted easier walking, and had fewer mosquitoes than the low swampy areas. Dry knolls near willow groves and streams were also used as campsites because of the availability of fuel and water. A site of this type can be found near the Atigun River bridge. A low, dry hill lies between two streams tributary to the Atigun, and is protected from the wind by the canyon walls. An early historic Nunamiut group camped here. Nearby, southeast of the Atigun bridge, is the Mosquito Lake site. Located on a moraine at the foot of the cliffs, this site provides a view of much of the Galbraith Lake Valley. Over a period of thousands of years people living in sheltered areas nearby, like Atigun Canyon, used Mosquito Lake as a lookout station.

The relationships between the locations of known sites and their functions may also provide clues as to where sites with similar functions may be found. Among the sites already discovered along the route are villages, tent rings from temporary camps, caches, lookout stations, chipping stations, cairns, fish wiers, burials, and remains of corrals or other devices used to capture big game.

Sites are also probable in areas abundant in the resources used by prehistoric people such as willow groves in the tundra, caribou migration paths, salmon streams, sources of good chipping stone, and transportation corridors.

Most of the sites found along the pipeline are shallow surface sites which are almost impossible to find in thick vegetation. The best places to look for signs of a site in a likely area are animal trails, rodent burrows, exposed bedrock, "blowouts" (places where wind action has exposed the ground surface), eroded gully banks, and other areas where the soil and vegetation covers are thin.

While a seemingly ideal location may contain no sites, by the same token, archaeological remains are sometimes found where they are not normally expected. In one such instance, the senior author, while surveying for sites at timberline, was returning on foot from the survey area when he came across an old cache in a small spruce grove where one was least expected. The grove contained dead trees, and the cache, constructed of horizontally placed logs, blended so well with the surroundings it would not have been discovered had it not been directly in his path.

What to Look for. Once the likely places to find sites are identified, how do you recognize a site? What are you looking for? A site, defined as any area where there is evidence of man's activity, may consist of a single artifact such as a tin can or arrowhead, one or two tent rings, a large village, or a historic town like Coldfoot.

Sites are frequently recognized because something in the landscape appears unusual or unnatural. The shape, color, size, or placement of an object may catch the eye and cause one to examine it more closely. Natural objects such as rocks or trees may be clues to a site if they are not where you would expect them to be or if they are arranged in an unusual manner.

One example was the discovery of a ceremonial cache by the author. From a distance of about a quarter of a mile he saw what appeared to be two dead willows standing in a boulder field where there was no vegetation. The presence of willows there was unusual, and upon investigation he discovered that they were in fact two pieces of split spruce which marked the place where four caribou shoulder blades had been buried during a hunting ceremony.

Another cache was discovered at the base of a jumbled rock slide. Large stone slabs had been piled up by frost action. Only a subtle difference distinguished these slabs from the cache which had been constructed from some of the slabs in the shape of a box with an open side.

A site may also be indicated by a single rock in a place where such rocks do not normally occur, or by several rocks formed in circles or rectangles. However, arrangements of rocks which appear to be the work of man are often the work of nature. For example, frost polygons formed by the shrinkage of the ground during periods of intense cold frequently have raised sides and may look like the remains of semi-subterranean houses. They are found mostly in wet ground, in groups with straight adjoining sides. Viewed from above, the surface of a group of frost polygons resembles a honeycomb. Semi-subterranean houses, on the other hand, are usually found on dry, well-drained ground, and although they were probably rectangular when constructed, often their walls have slumped so that the remaining depressions are now oval to circular. Houses may have had two or more adjacent rooms, but the dwellings themselves were seldom directly adjacent to each other.

Most of the prehistoric villages discovered to date in interior Alaska have been relatively small, containing a dozen or fewer houses. Often, smaller depressions marking the ruins of old underground caches occur near the house depressions. Broken house posts or other artifacts may be found in the house depressions or on the adjacent ground surfaces. Frequently the vegetation growing within a house depression will differ in color, thickness, or type from the vegetation nearby. At an early historic Ahtena village near Chitna, for example, house depressions in a grassy field stood out in the fall when the grass in the house pits remained green after the surrounding grass had turned brown (Figure 2).

The shallow surface sites along the pipeline are usually recognized by the presence of a feature or artifact. The most common remains are the

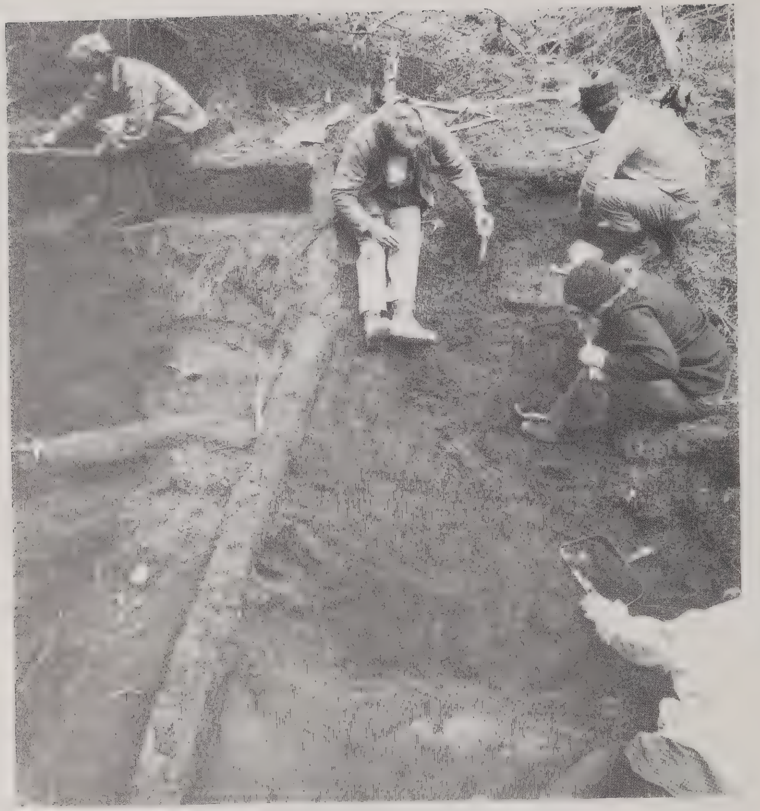


Figure 2. MS 23-0. An Ahtena semi-subterranean house during an early phase of excavation by Alyeska archaeologists. The long low walls are bulks left by the archaeologists and not functional units of the house.
Courtesy of Alyeska Pipeline Service Company.

waste flakes from stone tool manufacture such as those shown in Figure 3. These waste flakes are usually of hard small grained stone such as fine basalt, chert, chalcedony, or obsidian which fractures like commercial glass. The more glassy the stone, the easier it is to predict how it will fracture and the easier it is to work. Quartzite, fine silt stone, and sandstone are rarely used for chipped tools because they are more difficult to flake.

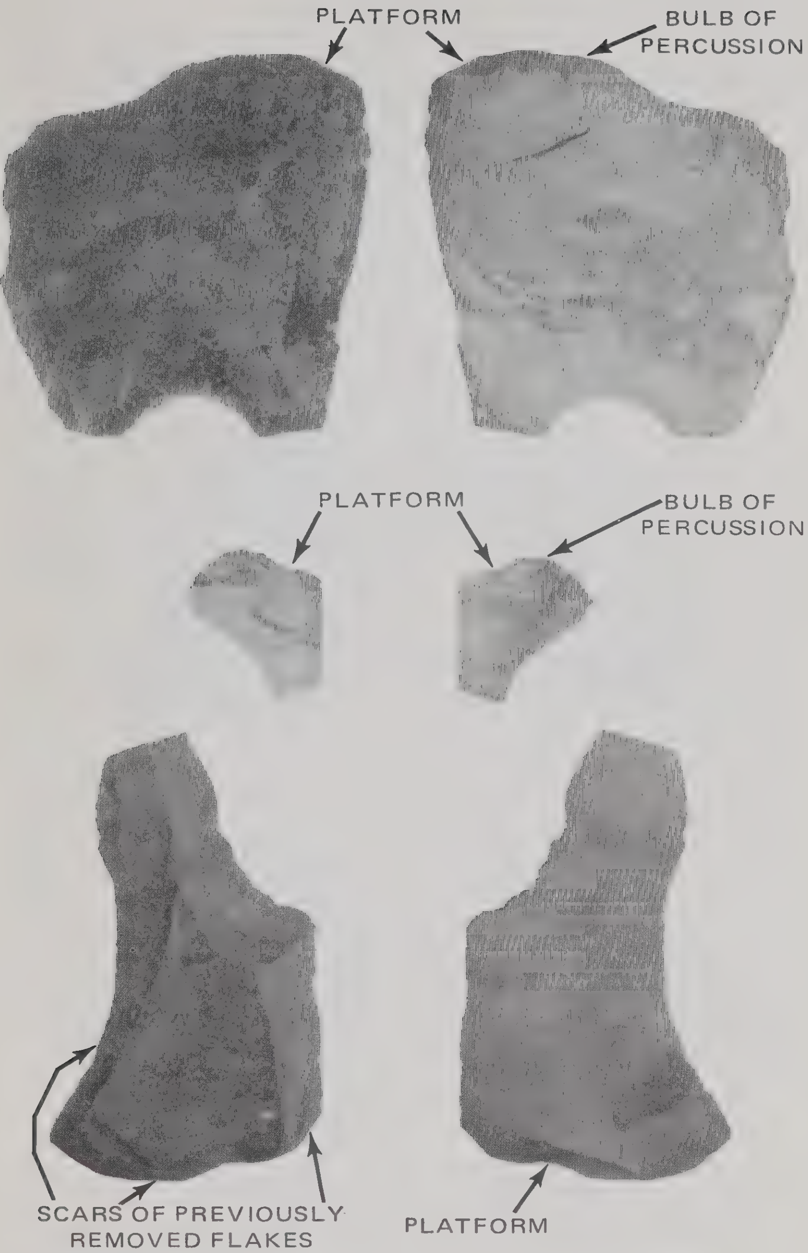


Figure 3. **Chert and chalcedony flakes similar to those found along the pipeline route. These are from the Tuktu site, Anaktuvuk Pass, Brooks Range. Photos show outer and inner surfaces of each flake (left and right, respectively).**
J. M. Campbell collection, Maxwell Museum of Anthropology. Courtesy of the Maxwell Museum.

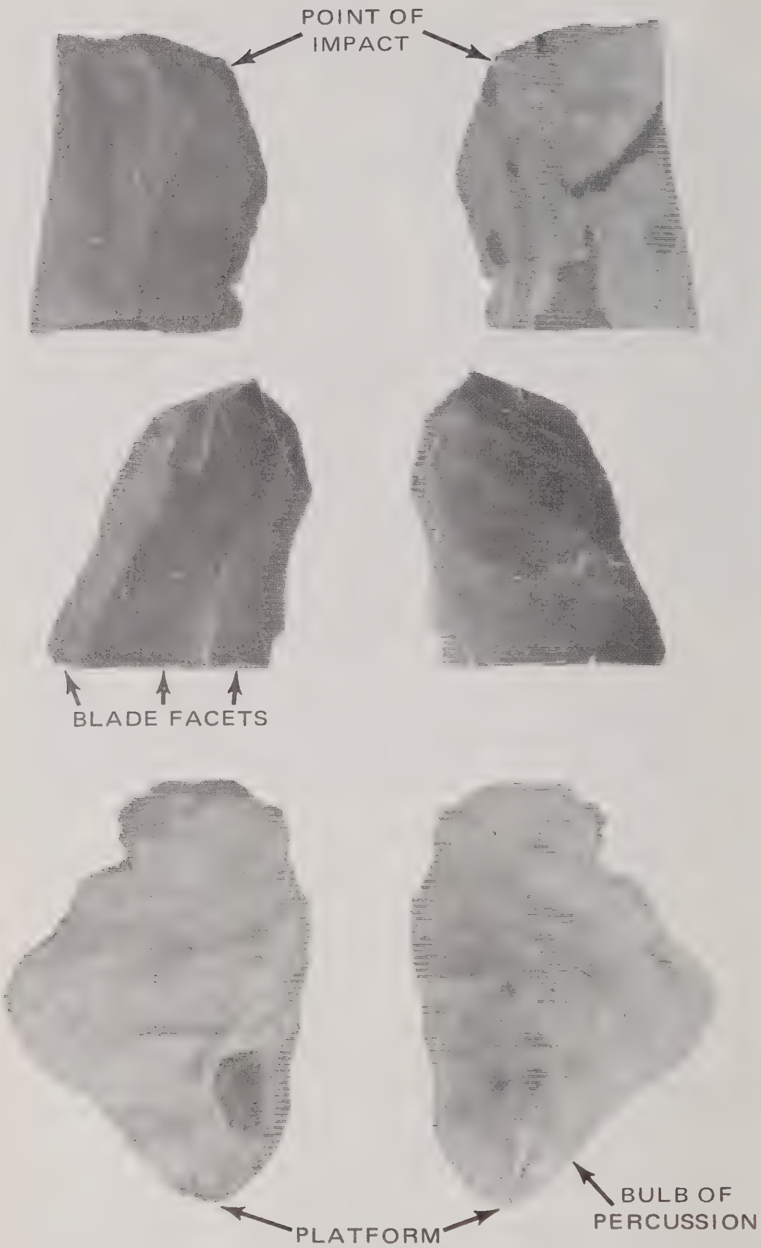


Figure 3. (Contd.) Chert and chalcedony flakes.

Where large numbers of flakes occur, other tools are also apt to be found, including blades, broken tools, cores, rough blanks for points, and hammerstones. The fine flaking on a side blade or end scraper may not be visible from a few feet. The best way to discover such artifacts is to look for particular shapes rather than for flaking.

Some of the types of artifacts found along the pipeline are shown in Figure 4 and in other photographs in this manual. Artifacts in the care of archaeologists along the line may be available for examination upon request, and others are on display in the University of Alaska museum.

At some sites, bone fragments may be seen scattered on the surface. These sites are probably less than 2000 years old since bones left exposed to the elements decompose with time. Caribou long bones were frequently broken to get at the marrow, or made into artifacts such as harpoons, fish hooks, arrow points, and awls. Bones are frequently a yellowish-brown color, or they may be black, grey, or white if they have been burned.

A small pile of fractured and broken rock may indicate a site. Stones were frequently placed in small circles to serve as hearths and were also used in the cooking process. When heated, rock frequently breaks and sometimes turns color. Even though the ashes from a fire may have disappeared, the stones which remain may be fire blackened, indicating a site.

Among other dwellings, hide tents were used as houses by early historic hunters. It is likely that

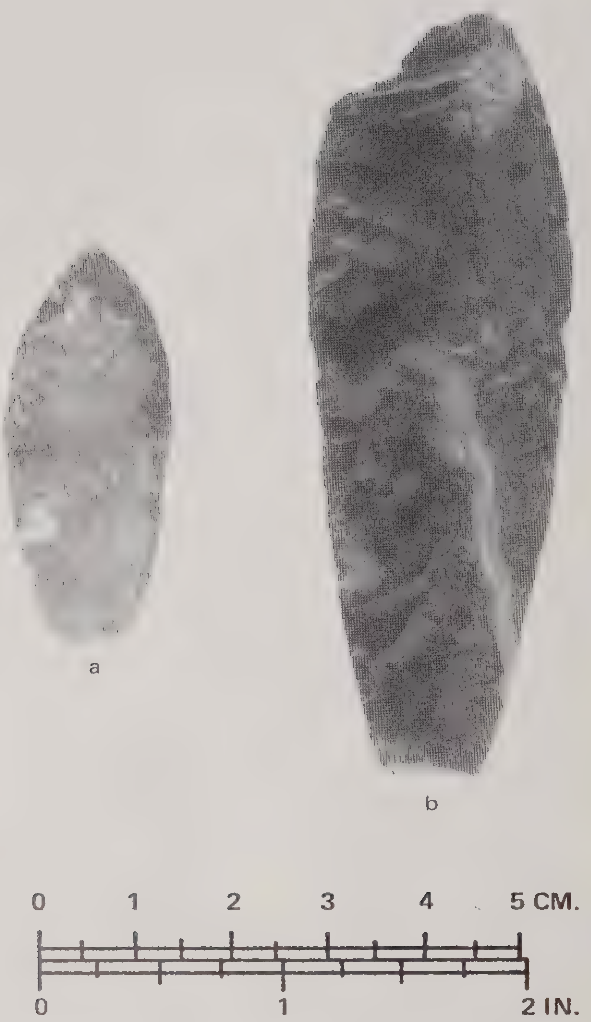


Figure 4. Tools from Anaktuvuk Pass, Brooks Range, similar to those found along the pipeline route. (a) Projectile point. (b) A knife or point.

J. M. Campbell collection, Smithsonian Institution. Courtesy of the U.S. National Museum.

the prehistoric inhabitants also used tents. Some of the sites found along the route are tent rings, that is, rocks positioned to hold down the edges of the tents. Historic tents were usually rectangular, with stones used along the sides and back. Cartridges and cans may be found at these sites. Earlier tents were frequently circular. Their stone rings may be 10 to 15 feet in diameter and contain as many as twenty stones, each measuring up to a foot in its longest dimension. These rings occur singularly or in small groups. Since these campsites were usually temporary, few artifacts remain at most of these sites.

The sites discussed above are all surface sites which can be discovered without excavation. Some extensive sites may not be found unless small test pits are dug by the archaeologists. Others will not be discovered until the area is cleared of vegetation for construction or until an old ground surface is exposed by heavy equipment. Broken bones or flakes may be observed in a trench wall or in the back dirt. If so, work should stop until the archaeologists can examine the area. Buried sites may contain the remains of extinct animals which were hunted by the first inhabitants of Alaska. Sites of this nature are of major importance to scientists trying to learn when man first lived in the New World. Artifacts similar to those that may be found at these sites are shown in Figure 5.

Recent Findings. As previously noted, Alyeska archaeologists have worked along the pipeline route since 1969. Most of their studies were conducted during the 1970, 1971, and 1974 field seasons. The following is a brief summary of their discoveries, based for the most part on Cook's 1970 and 1971 reports (see Selected

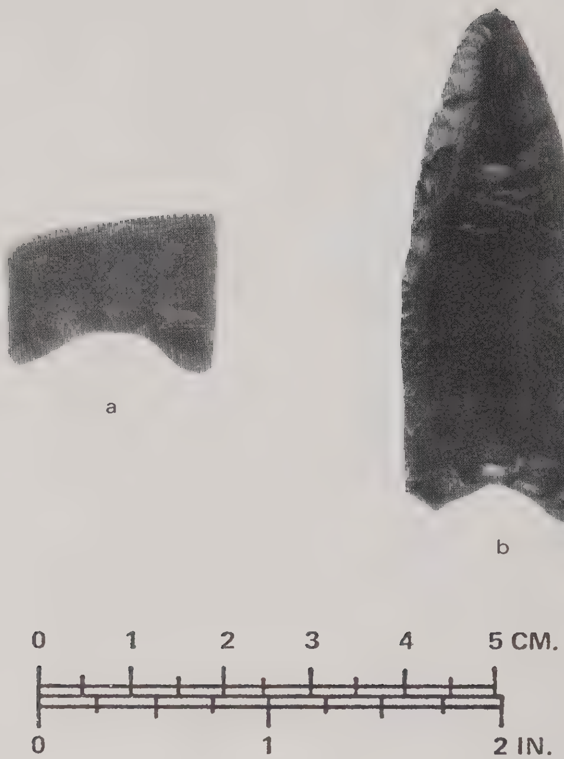


Figure 5. Fluted projectile points which may be found with the remains of extinct animals. (a) A basal section. (b) A nearly complete point with a well defined central channel.
Courtesy of the U.S. National Museum.

Readings). It is presented here to provide an indication of the types of archaeological sites one may expect to find along the pipeline route.

Beginning at the northernmost end of the route at Prudhoe Bay, a site containing a log cabin, a sod house, and other features was partially excavated. From the materials recovered the investigators reconstructed certain human activities which they then compared with those recalled by Eskimos who had lived there in the earliest decades of the present century.

A variety of older sites were discovered along and near the Sagavanirktok River. Many of these sites consisted of tent rings and lithic debris. One of the more interesting localities in this area is known as the Gallagher Flint Station, which lies north of Toolik Lake. This high knoll provides a view for miles to the north and south. Covered with lithic debris, the site was occupied at various times over the last 10,000 years. It was discovered when an archaeologist noticed a few waste flakes. Also, a number of tent rings and some chipping stations were found near Toolik Lake. This area is the eastern margin of the range of the western arctic caribou herd. These tent rings probably date to about the time of first European contact in the early 1800's.

In the Galbraith Lake vicinity tent rings, moss houses, and lithic scatters have been discovered dating from the Denbigh period (4000–2000 B.C.) to the 1900's. The Atigun Valley is a caribou migration route which would have attracted prehistoric inhabitants, who used tools such as those shown in Figure 6.

A number of sites have been found along the route from Fish Creek to the continental divide of the Brooks Range, with the highest density between the Middle Fork and South Fork of the Koyukuk River and near Bonanza Creek. The sites occur in a border area between the uplands and the lower riverine regions, and each site occupies a vantage point on elevated terrain. Most of the sites are small localities which were probably game lookouts, although a few of the larger sites may represent campsites. Many of these sites belong to early Athapaskan cultures. They contain a fairly high percentage of obsidian, which was almost certainly obtained from the Koyukuk Valley.

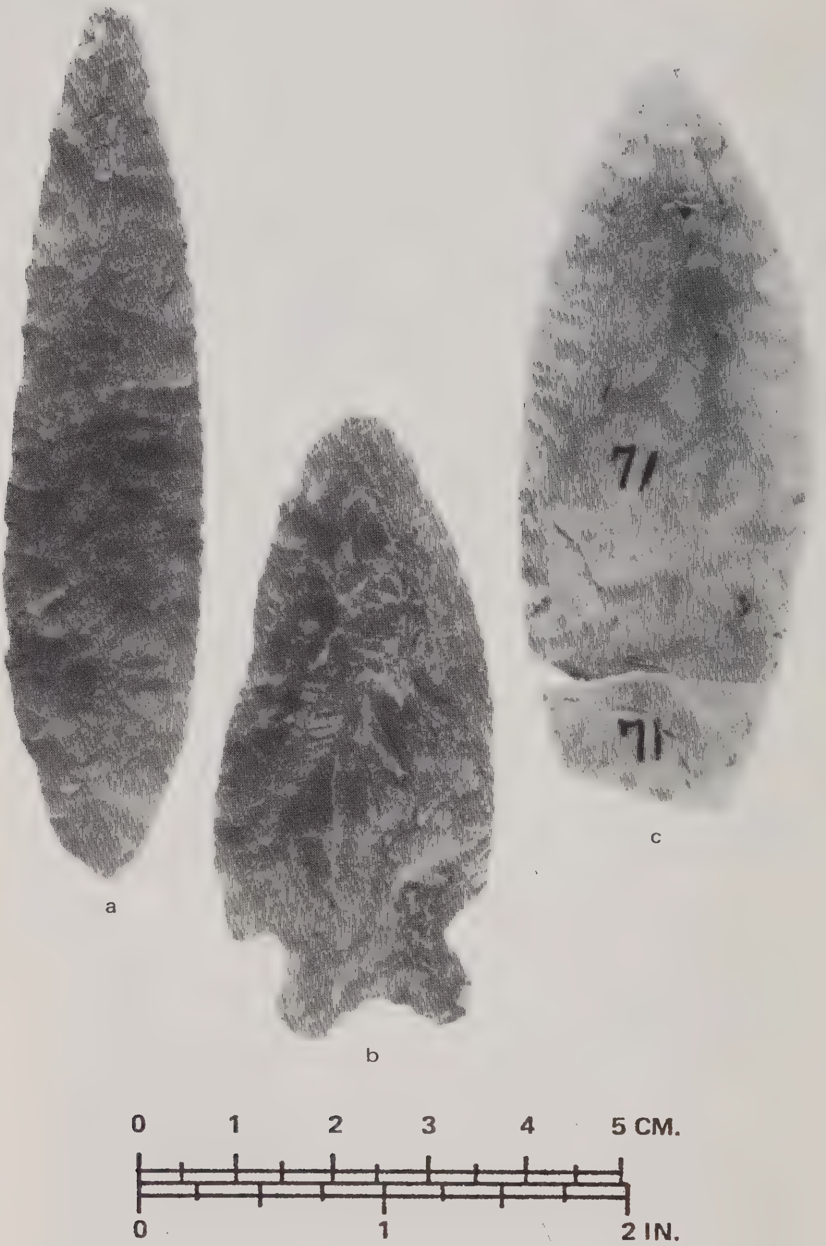


Figure 6. Arctic Small Tool tradition artifacts from the Natvakruak site, Anaktuvuk Pass, Brooks Range. (a) Knife or end blade. (b, c) Projectile points.
J. M. Campbell collection, Smithsonian Institution. Courtesy of the U.S. National Museum.

Many of the sites in the region extending to the south from Fish Creek to Livengood are on low well-drained ridges near the Upper Kanuti River and other low lying areas. Many of the implements found are made of basalt, and some appear to be of Kavik origin. A few sites have been recorded near the Yukon River. One site at Hess Creek is a flint station of the Denali type. Several quarry sites have been found near the Manley Hot Springs Road on outcrops of Livengood chert.

Much of the pipeline right-of-way from Livengood to Hogan Hill, and from Hogan Hill to Valdez crosses densely vegetated regions in which it is extremely difficult to discover sites. A few localities containing lithic scatters were found by Alyeska archaeologists near Donnelly Dome, close to a previously excavated site.

In the area from Hogan Hill to Valdez, Alyeska archaeological surveys revealed very little until 1974, when a number of sites were found on or near the pipeline route. During that season, a few small lithic scatters were discovered on eskers in the Tonsina Valley (Figure 7). Some of the artifacts recovered from these sites probably date to well before the Christian era.

The Copper River Valley, which contains the Tonsina Valley, is the ancestral territory of the Ahtena Indians. Most of the major Ahtena settlements contained semi-subterranean houses and were situated on the banks of the Copper River. One such settlement was discovered near the confluence of the Copper and Gulkana Rivers in 1974. This site consists of two areas containing a total of twenty-five depressions which mark the former locations of houses and

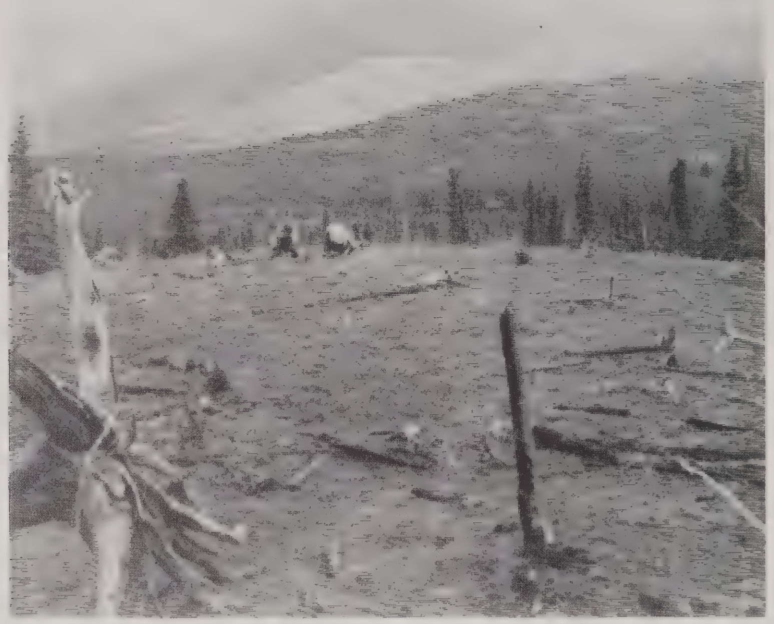


Figure 7. A lithic site on an esker in the Little Tonsina River Valley.
Courtesy of Alyeska archaeologist G. A. Clark.

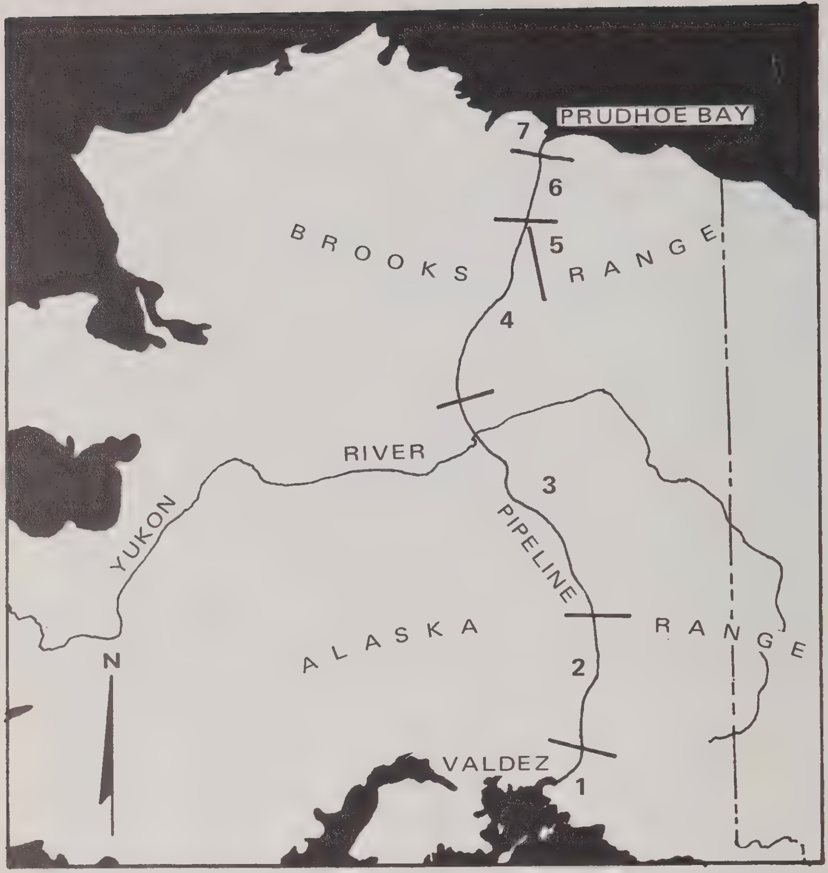
other features. Two of the houses were excavated, and each was found to contain two rooms and well preserved plank floors. Although few artifacts were found, these excavations supplied valuable data about the prehistoric Ahtena including their architecture. It is expected that other native Alaskan sites as well as some nonnative sites dating to the gold rush of the 1898 period will be discovered in this area.

Archaeological sites are not always easy to recognize and are often discovered just by accident as the senior author can testify from the following personal experience. A kame terrace in the central Brooks Range seemed a likely location for a site. The author surveyed the ridge, but after sinking numerous test pits without results, he finally abandoned the terrace and turned his attention to the surrounding area. While surveying this larger area, however, he frequently had occasion to cross the terrace, and on one such occasion he happened upon a single stone flake that eventually led to the discovery of the Tuktu site, which covered several acres. This incident illustrates how the accidental discovery of just one small flake can lead to a major find. It also shows how a small clue can be overlooked during a survey and that no area can be 100 percent cleared of sites.

CULTURE HISTORY

The following brief summary of the historic and prehistoric cultures found along the pipeline route is presented to help place the archaeological sites into historic perspective. From Valdez to Prudhoe Bay the pipeline crosses the territories of several distinct native societies whose different lifestyles reflect the diverse natural environments of Alaska (Figure 8).

The Historic Period. The Chugach (or Chugachmiut) Eskimos lived in a number of small villages along the sea near Valdez. This area is in the maritime climatic zone where warm temperatures and high precipitation produce lush forest growth. Excellent boatmen, the Chugach depended on sea resources for survival. Whales, seals, and sea otters were hunted with harpoons; wiers were used to catch salmon and other fish; and molluscs and other saltwater invertebrates were collected. Land animals including mountain goats were hunted with spears, arrows,



1. CHUGACH TERRITORY
2. AHTENA TERRITORY
3. TANANA TERRITORY
4. KOYUKON TERRITORY
5. KUTCHIN TERRITORY
6. NUNAMIUT TERRITORY
7. TAREUMIUT TERRITORY

Figure 8. **Cultural territories along the Alyeska pipeline route.**

snares, and traps. Wild plants and berries supplemented the Chugach diet. The Chugach typically dwelled in permanent semi-subterranean houses. Their clothing was well tailored from skins, and they rarely experienced hunger. It is believed that the Chugach controlled some or much of the Lowe River Valley toward Thompson Pass. Relatively few Chugach live in Alaska today.

Beyond Thompson Pass, the Copper River Valley and its various approaches were occupied by the Ahtena (or Ahtna) who were not Eskimos but Indians who spoke an Athapaskan language. Ahtena Indians still inhabit the Copper River Valley. The transitional climate of the Copper River Basin is colder and drier than that of the southern coastal areas. The vegetation is also shorter and sparser than along the coast, and white and black spruce are the major conifers. Among the plant resources used for food were berries and the starchy root of sweet vetch. The major food animals were the caribou, sockeye salmon, Dall sheep, arctic ground squirrel, and moose, in about that order of importance. Mountain goats, waterfowl, grouse, including ptarmigan, and several fish species, other than the sockeye salmon, were also consumed. Caribou and sockeye salmon, however, were the most abundant and reliable food resources.

The Ahtena lived seasonally in different parts of the Copper River Valley. They inhabited small communities of semi-subterranean houses along the river in the winter and during the salmon run. In late summer and fall they hunted caribou and Dall sheep on the flanks of the surrounding mountains. Despite their expertise as hunters and fishermen, their food base was not as varied and stable as that of the Chugach, and they occasionally suffered from starvation.

Isabella Pass marked the approximate boundary between the territories of the Ahtena and the Tanana Indians who lived in the Tanana Valley. The Kutchin and Koyukon Indians lived between the Yukon River and the Brooks Range. The Koyukon territory included the valleys of the Koyukuk River and most of its tributaries, while to the east, the Kutchin inhabited the valleys of the Chandalar River, its tributaries, and the Porcupine River. The exact boundary between the two regions is unknown.

Although distinct cultural entities, the Tanana, Kutchin, and Koyukon spoke Athapaskan languages, lived in similar environments, and had similar lifestyles. In this region, the climate is continental, generally colder and drier than in the Copper Basin to the south. White spruce, black spruce and cottonwood are the dominant tree types.

The food resources of this region include few salmon but are otherwise similar to those of the Copper River Valley. While the Tanana, Kutchin, and Koyukon ate lake trout, grayling, whitefish, northern pike, and other fish, these fish were never as economically important to them as salmon were to the Ahtena. Caribou were the most important part of their diet, and were impounded, snared, and shot in large numbers. Those groups living near the mountains hunted Dall sheep. Small game and fowl played a much smaller role in their subsistence. A few plants such as berries and sweet vetch were eaten. Their housing, clothing, and tools were similar to those of the Ahtena and similarly represented expert adaptations to cold climate living.

The treeless area north of Dietrich Pass in the Brooks Range was inhabited by the Nunamiut who were interior Eskimos as distinguished from coastal Eskimos. A small community of Nunamiut Eskimos still exists in Anaktuvuk Pass. They formerly ranged over most of the Arctic Slope and in some areas even slightly south of the Brooks Range divide. Most of this territory is a cold desert with an arctic climate of low annual precipitation and very low annual temperatures.

The only sizable plants in most of the Nunamiut range are willows. Arctic cotton grass, other small herbaceous plants, and lichens provided forage for the large herds of caribou upon which the Nunamiut depended. Caribou provided food, clothing, bedding, roofing, and other items. During the spring and fall migrations, caribou were impounded and snared, and driven into lakes where they were lanced from kayaks. The arctic ground squirrel, Dall sheep, and various species of fish such as ling, lake trout, arctic char, and grayling were also important parts of the diet. Plants and birds constituted only a small percentage of the utilized food resources.

The Nunamiut travelled widely throughout each year. Their houses were either portable or temporary shelters. Conical or hemispherical tents, with willow frames and caribou hide covers, were highly portable and were used all year round. Multi-sided structures supported by willow post frames and beams and covered with thick layers of moss were used only in the winter and were usually abandoned in the spring. Houses of this type dating to 100 years ago have been excavated by Alyeska archaeologists in the vicinity of Galbraith Lake. The largest villages may have contained as many as 50 to 75 people but usually no more than 35 to 40.

Tareumiut Eskimo territory lies along the northwest and north coasts of Alaska. The climate is arctic, with an average annual temperature of 0^{O}F and little precipitation. Descendents of the Tareumiut still live at Point Barrow, Wainwright, Point Hope, and some other localities in northernmost Alaska. Although they ate caribou and fish, their major subsistence was derived from the sea. They crossed the sea ice in search of seals and hunted walrus and whales in leads opened in the ice in spring. The one-man kayak and the large open umiak were constructed of driftwood frames covered with sealskin.

In addition to developing craft suitable for use in the sea, the Tareumiut had a highly specialized tool kit which contained harpoons for everything from a small seal to a great bowhead whale. Eider ducks and other birds which migrated along the coasts in large numbers played a more important role in the Tareumiut diet than in the diets of the other people discussed here.

Major Tareumiut villages were located where points of land and deep water coincided, thereby increasing the probability of shore leads in the spring funnelling the migrating sea mammals close to the villages. In one such settlement at Point Barrow, 200 or more people lived in semi-subterranean houses of driftwood and whalebone frames and sod coverings. Properly constructed, these homes could be adequately heated with small stone oil lamps. A deep cache dug into the permafrost kept meat through the year. Raised caches and boat racks kept other items out of reach of the sled dogs. In summer, skin tents similar to those of the Nunamiut were pitched near the winter sod houses. Point Barrow has probably been inhabited more or less continuously for the past 5000 years.

The Prehistoric Period. Anthropologists believe that the Western Hemisphere was initially populated by people who entered Alaska from Asia by crossing the Bering Strait. These immigrations occurred at different times. While little is known about the earliest people to cross, Alaskan archaeological discoveries imply that the Athapaskans may have entered Alaska more than 1100 years ago. It is also generally believed that Eskimo culture developed in the Bering Strait region some 4000 to 6000 years ago. However, as noted above, the culture history of Alaska is imperfectly known, and any conclusions concerning the origin of the Athapaskans and the Eskimos are presently tentative.

Two sites recently excavated by J. P. Cook and R. A. McKennan near Healy Lake in the middle Tanana River Valley may represent early Athapaskan culture. The oldest level at one of these sites, dating to 9000 B.C., contained artifacts which differ from those of any other known sites. The next level, dating to 7000 B.C., contained artifacts similar to those excavated by D. A. Anderson at Onion Portage on the Kobuk River. This level lay below a sterile layer, above which occurred artifacts representative of the Tuktu complex.

The Tuktu type site at Anaktuvuk Pass was discovered by the senior author. Typical artifacts included distinctive side or corner notched stone points, lanceolate points, and microblades. Sites of this type have been found in several areas along the pipeline route. Dating from 4000 to 2000 B.C., the Tuktu horizon probably indicates an Athapaskan adaptation to tundra as well as boreal forest environments (Figure 9).

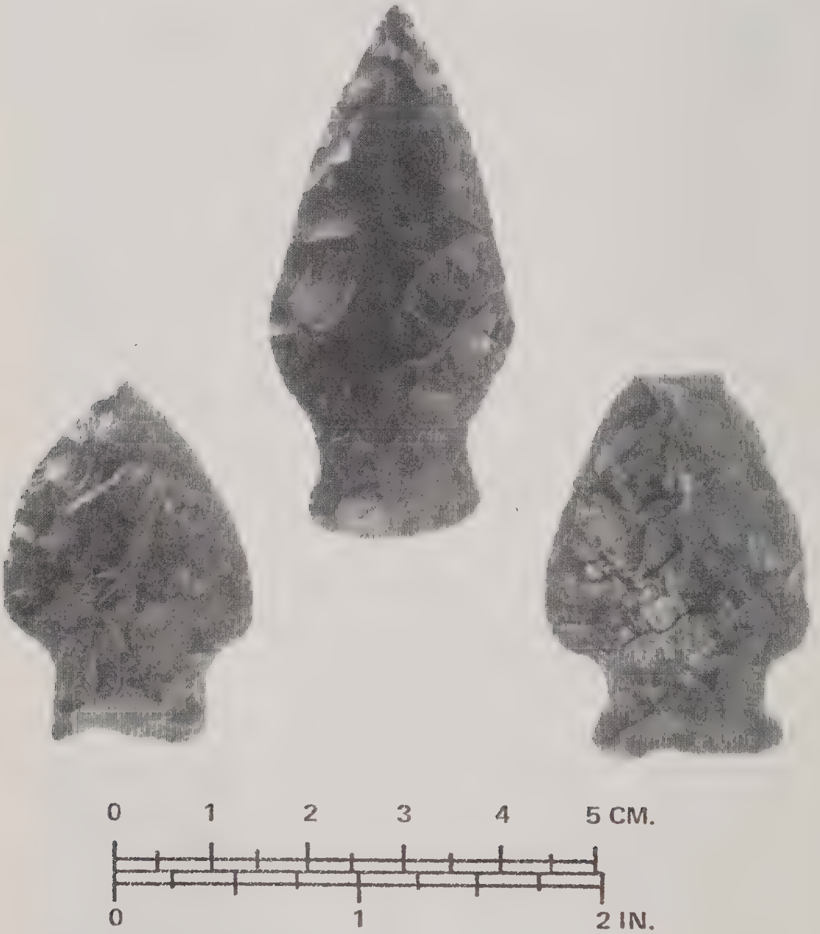


Figure 9. Tuktu projectile points.
J. M. Campbell collection, Smithsonian Institution. Courtesy of the U.S. National Museum.

Following Tuktu at the Village site were the early and late Denali cultural horizons. The Denali type site discovered and excavated by F. H. West near Mt. McKinley National Park, contained bifacial knives of various sizes, distinctive microcores and microblades, and small burins made on flat, irregularly shaped flakes. Denali sites have been found near Fairbanks and in other areas of Alaska. The Denali period ended about A.D. 1200.

Late prehistoric sites belonging to the Kavik complex were probably inhabited by Athapaskans. The Kavik type site was discovered by the author in Anaktuvuk Pass, and additional sites have been found along the pipeline. The more distinctive Kavik artifacts are crude, lozenge shaped or stemmed stone points as shown in Figure 10.

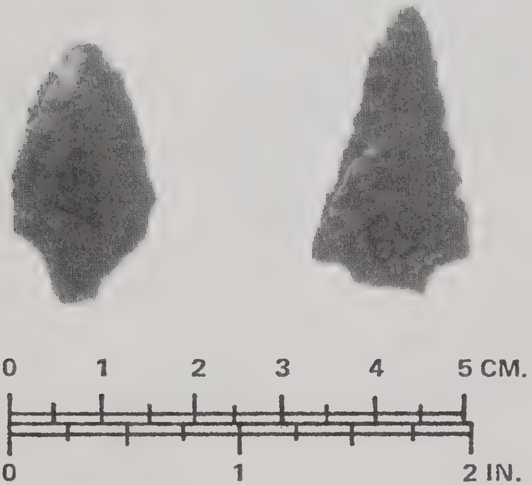


Figure 10. Kavik projectile points.
J. M. Campbell collection, Smithsonian Institution. Courtesy of the U.S. National Museum.

It is now hypothesized that the early Athapaskans had a flexible cultural inventory which permitted them to adjust to both tundra and boreal forest environments. The reasons why the boundaries between the Eskimos and Athapaskans shifted over time are among the research problems being investigated by the Alyeska archaeologists.

Since more work has been done on coastal sites, Eskimo prehistory is better understood. A distinctive cluster of artifacts is typical of every extensive Eskimo site. Although Eskimos live along the coasts (and occasionally inland) from southern Alaska to Greenland, only the western American arctic area is discussed here.

While their cultural origins are obscure, the sites excavated by J. L. Giddings and D. J. Stanford at Norton Sound and Cape Krusenstern, and those excavated by Stanford near Point Barrow, have quite firmly established that Eskimo culture dates to 4000 to 6000 years ago, if not earlier.

Among the early Eskimo sites, the Denbigh type site discovered by Giddings at Cape Denbigh, Norton Sound, is characterized by extremely finely flaked end and side blades, lanceolate points, knives, scrapers, microblades, and burin spalls. Related sites have been found along the coast to Point Barrow in the northern part of the Brooks Range and throughout the Alaskan Arctic Slope. A few sites closely related to Denbigh have been found in the boreal forest of the southern flanks of the Brooks Range. Denbigh sites have been found along the pipeline route. The wide range of Denbigh sites indicates a high level of adaptation to both coastal and interior arctic environments.

There are important continuities from Denbigh through later Eskimo cultures, especially the types and very small size of many implements. Because of these common traits, the various Eskimo cultures from 4000 to 2000 B.C. to the beginning of the Christian era are included in the Arctic Small Tool tradition (Figures 11 and 12), first named and described by W. N. Irving.

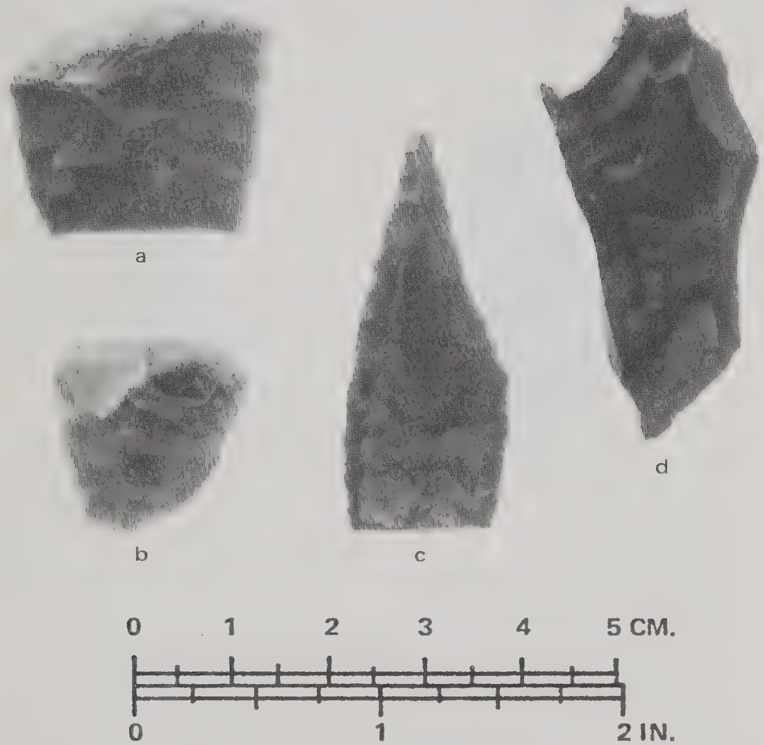


Figure 11. Arctic Small Tool tradition artifacts from the Coffin site, Point Barrow. (a, b) End scrapers. (c) End blade or projectile point. (d) Graver.

Dennis J. Stanford collection, Maxwell Museum of Anthropology. Courtesy of the U.S. National Museum.

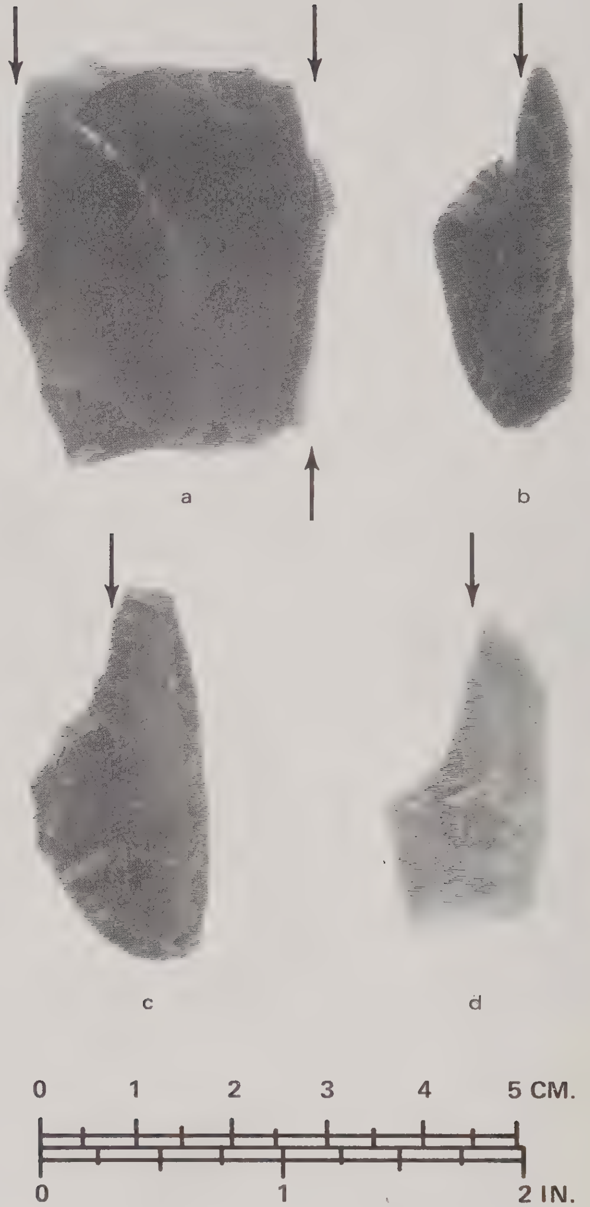


Figure 12. **Arctic Small Tool tradition burins from the Coffin site, Point Barrow. Arrows indicate direction of burin blow. (b, c, d) Classic mitten shaped burins. Note careful parallel flaking of (c).**
Dennis J. Stanford collection, Maxwell Museum of Anthropology. Courtesy of the U.S. National Museum.

Near Point Barrow the Walakpa complex, discovered and described by Stanford, dating from 2000 to 3000 years ago, succeeds the Denbigh culture. In addition to Denbigh-like tools, pottery ground stone tools, and stemmed projectile points with square bases and round shoulders are associated with Walakpa.

Similar projectile points were found in the Choris site discovered by Giddings, which contained large, oval winter houses, pottery, antler harpoon and adz heads, but no microblades or microcores. Choris-like assemblages thought to be about 3000 years old have been found in the Brooks Range by Alyeska archaeologists.

Another related Arctic Small Tool tradition complex is reflected by the Avingak site discovered by the senior author in Anaktuvuk Pass. Avingak differs from Walakpa and Choris in that it contains no pottery, ground stone tools, or burins. Microblades, microcores, diagnostic side blades, end blades and end scrapers were found at Avingak.

The last Arctic Small Tool tradition culture to be noted here is that of Norton dating from 1500 to 2500 years ago. The Norton type site was discovered by Giddings on Norton Sound. Norton sites contain pottery, ground stone burins, antler harpoon heads, and antler ice picks.

The largest known Eskimo settlement, containing more than 600 rectangular houses, was discovered at Point Hope by Giddings, F. Rainey, and H. Larsen. This site belongs to the Ipiutak culture, dating from 1000 to 1500 years ago. Several of the artifacts at this site seem to have been influenced by Siberian Iron Age cultures.

Distinctive Ipiutak artifacts are intricately carved bone and antler chains, masks, and other ornaments. Ipiutak flaked stone end and side blades and scrapers seem to have been derived from the Norton culture. Several sites in the Brooks Range represent Ipiutak culture.

About A.D. 500 the Birnirk Eskimos lived along the northwestern Alaskan coast. In addition to artifacts typical of historic Eskimo sites, Birnirk sites include small cutting tools such as end and side blades, scrapers, and knives that are similar to Arctic Small Tool tradition artifacts.

Thule culture developed shortly before A.D. 1000 out of Birnirk. A large number of Thule people apparently migrated eastward to Greenland, and a return migration of eastern Thule occurred a century or two before the historic period. Evidence indicates that Thule was directly ancestral to historic north Alaskan Eskimo societies.

Finally, the protohistoric Nukleet site discovered by Giddings on Norton Sound ties the historically known Eskimos with those of the distant past. This site dates from A.D. 1200 to 1700. It yielded many artifacts such as kayak pieces, antler arrowheads, and harpoon heads with identical counterparts in 19th century collections. On the other hand, Nukleet projectile points and other implements relate directly back to the Arctic Small Tool tradition.

GLOSSARY

Archaeological Surveying: Traversing an area, usually on foot, for the purpose of locating and mapping the positions of archaeological sites. It may also involve test excavations.

Artifact: Any object which has been modified by human activity.

Biface: A stone artifact which has flakes removed from both opposing large surfaces. A uniface has flakes removed from a single surface.

Blade: A thin stone flake removed from a specially prepared core. Blades have long parallel sides, are at least twice as long as wide, and are triangular in cross section or have several parallel ridges running the length of one surface. A microblade is a small blade.

Burin: A stone tool, usually made from a flake, with a sturdy chisel-shaped edge produced by a characteristic blow. It is believed that burins were used to groove or incise antler and other hard materials (Figure 13).

Burin spall: A small stone flake removed in the process of making the working edge of a burin. Burin spalls were used as incising and cutting tools.

Component: A single occupational level in a vertically stratified site or the remains of a brief occupation at a non-stratified site.

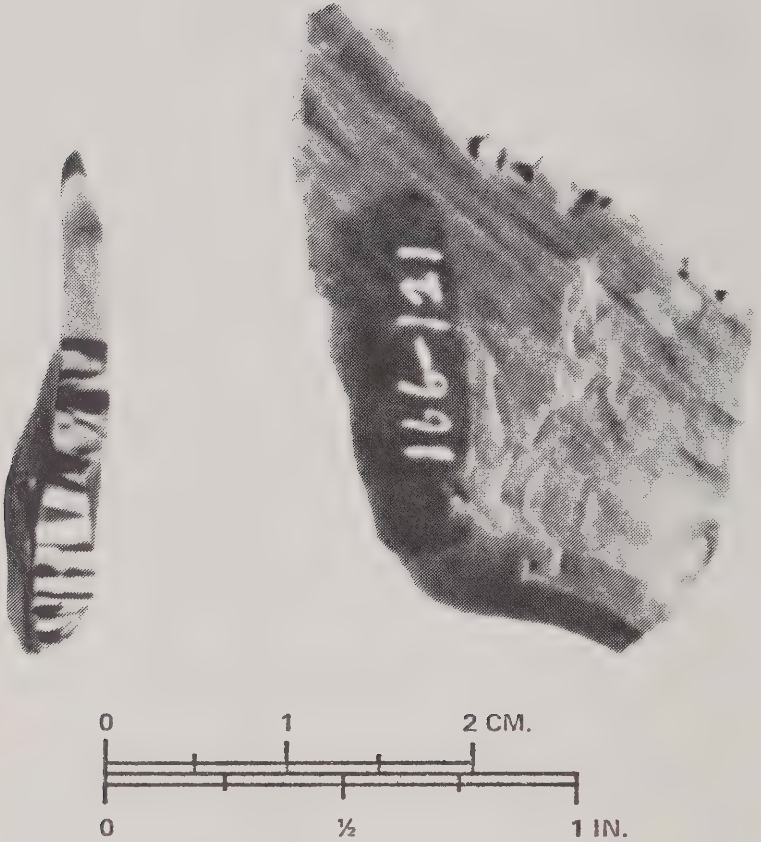


Figure 13. Frontal and edge views of a burin from which nine spalls have been struck.
From John P. Cook, Final Report of the Archaeological Survey and Excavations along the Alyeska Pipeline Service Company Pipeline Route. University of Alaska, College, Alaska, December 1971.

Core: A stone from which flakes have been removed by man. Cores were frequently prepared for the production of blades or microblades (Figure 14).

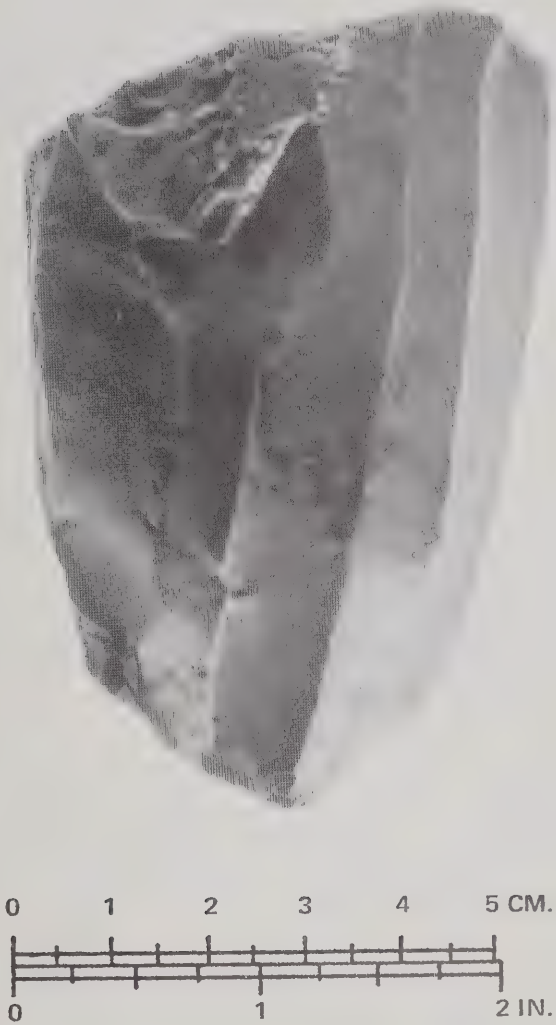


Figure 14. A prepared core from which several blades have been struck.
Ralph S. Solecki collection, Smithsonian Institution. Courtesy of the U.S. National Museum.

Culture: Learned, patterned behavior shared by the members of a society. Archaeologically a culture is defined on the basis of several sites which together reflect the behavior of a single society.

End blade: A blade or other stone flake worked to a point by flaking or grinding, usually bifacially, which was inset into the end of a projectile.

Feature: A non-portable artifact such as a hearth or house.

Flake: A thin, chip-like or scale-like piece of stone removed from a core or tool by applied force.

Ground stone artifact: A tool made by grinding, abrading, or rubbing rather than by flaking.

Lanceolate point: A projectile point which is tapered at one or both ends in the shape of a lance blade or a willow leaf.

Prehistoric: Usually defined as that period of time prior to written records. Consequently its duration varies from place to place. In some parts of Alaska the prehistoric period lasted until after A.D. 1800.

Projectile point: A tool, usually made of stone, used to tip a projectile such as an arrow, spear, or harpoon.

Protohistoric: That period of time immediately prior to the historic. In North America this is the period when trade goods begin to appear in sites but there is no regular contact with Europeans.

Radiocarbon dating: A fairly precise method of dating organic material based on the half-life of the C14 remaining in such material.

Side blade: A blade or other stone flake, usually bifacially worked and lunate in shape, which was inset into the side of an arrowhead or other projectile.

Site: Any evidence of past human activity. A site may range in size from a few flakes to a large village.

Stratigraphy: The layering of deposits. Usually the deeper in the site a layer is, the older it is.

Type site: An archaeological site at which a new cultural manifestation is first defined.

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REGULATIONS

Several laws mandate the protection of archaeological sites and formed the basis for Stipulation 1.9 of the Stipulations for the Agreement and Grant of Right-of-Way for the Trans-Alaskan Pipeline. The Antiquities Act of 1906 protects sites on federal land and establishes penalties for their unauthorized disturbance. Similarly, the Alaska Historic Preservation Act protects those sites located on state property. Nearly all of the pipeline route crosses state or federal lands.

The Historic Preservation Act of 1966, NEPA, and Executive Order 11593 direct federal agencies to carefully consider the impact of any project undertaken or licensed by them on archaeological and historical sites. They are obligated to recommend sites for inclusion on the National Register of Historic Places and to provide protection to a site until its eligibility is determined.

Stipulation 1.9–1.9.3 inclusive.

Antiquities Act of 1906 – Public Law 59-209; 34 Stat. 225; 16 U.S.C. 431–433
Protects sites on federal property.

Historic Preservation Act of 1966 – Public Law 89-665; 80 Stat. 915; 16 U.S.C. 470
Establishes the National Register of Historic Places and the Advisory Council on Historic Preservation.

National Environmental Policy Act of 1969 Public Law 91-190; 91 Stat. 852; 42 U.S.C. 4321–4347
One of the national goals embodied in this act is the preservation of important historic and cultural aspects of our national heritage.

Executive Order 11593 – "Protection and Enhancement of the Cultural Environment" May 15, 1971, 36 F.R. 8921
Directs federal agencies to inventory archaeological and historical sites in their jurisdiction and requires the agencies to carefully consider the impact of any action with which they may be involved on archaeological and historical sites.

The Alaska Historic Preservation Act – A.S. 41 Chapt. 35.
Protects sites on state property and establishes the Historic Sites Advisory Committee.

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